

TAXONOMIC STATUS OF THE NEARCTIC SPECIES OF  
*AUXANOMMATIDIA* BORGMEIER (DIPTERA: PHORIDAE)

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*Abstract.*—A transcontinental series of specimens of the phorid genus *Auxanommatidia* is described and compared with the holotype of *A. californica* Borgmeier and the original descriptions of *A. californica* and *A. boreotis* Beyer. Male genitalia and ovipositors of eastern, midwestern, and western specimens are also compared. It is concluded that all specimens represent a single species, *A. boreotis*, and *A. californica* is treated as a **junior synonym**.

*Key Words:* Diptera, Phoridae

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Borgmeier (1924) erected the genus *Auxanommatidia* (Phoridae: Metopininae) to receive his Brazilian species *A. variegata*. In this genus, the frons is narrowed anteriorly and its median longitudinal furrow is distinct; it has two proclinate supra-antennal bristles plus three transverse rows of four bristles each, the lower interfrontal bristles are vertically below the lower fronto-orbital bristles; the large eyes have ommatidia gradually increasing in size from top to bottom; flagellomere 1 is oval and has a dorsal arista; the ovipositor is chitinized, and the cerci of the male are long and narrow. Subsequently, six more species in the genus from Brazil (Borgmeier 1925, 1958, Borgmeier and Prado 1975), two from the United States (Beyer 1963, Borgmeier 1963), and one from Nigeria and Senegal (Disney 1981) were described. One species, *A. myrmecophila* Borgmeier, has been taken at a *Camponotus rufipes* Fabricius nest (Hymenoptera: Formicidae), a fact that led Borgmeier (1971) to speculate that the entire genus is probably myrmecophilous.

Following the recent discovery of specimens of *Auxanommatidia* in New York

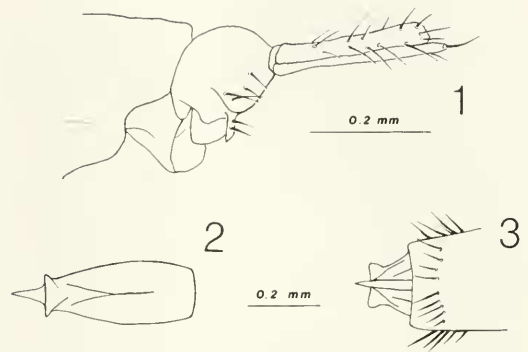
State, it was realized that Borgmeier's (1963) description of *A. californica* is remarkably similar to Beyer's (1963) description of *A. boreotis*. The main differences are the darker halteres and flagellomere 1 in the former species. The holotype of *A. californica* agrees well with its original description. The holotype of *A. boreotis* apparently is lost. It originally came from the R. R. Dreisbach collection, but it is not among Dreisbach's collection at Michigan State University (MSU), nor is it at the United States National Museum (USNM), Cornell University (CU), or the Zoologisches Forschungsinstitut und Museum Alexander König in Bonn (ZFMK).

I have gathered a series of 16 Nearctic specimens of *Auxanommatidia*: UNITED STATES: CALIFORNIA: "SFksStaAna," 16 July 1947 (female holotype), A. L. Melander, USNM. San Bernardino County, Camp Baldy, 1 July 1945 (male paratype), A. L. Melander, USNM. MICHIGAN: Livingston County, E. S. George Reserve, 24 July 1943 (female), G. Steyskal, USNM. NEW YORK: Washington County, Eldridge Swamp, 43°03'34"N, 73°21'27"W, 30

July–6 August 1985 (male), J. K. Barnes, New York State Museum (NYSM). Washington County, Camden Valley, 43°08'52"N, 73°15'52"W, 244 meters, 24 July 1989 (male), 3 August 1989 (female), H. Romack, NYSM. Washington County, Murray Hollow, 43°05'49"N, 73°17'02"W, 224 meters, 19 July 1989 (female), H. Romack, NYSM. OREGON: Baker County, L. Goose Creek, 36 miles southeast of Union, 4000 feet, 24–31 August 1975 (male), E. J. Davis, Washington State University (WSU), malaise trap baited with CO<sub>2</sub>. Union County, Ladd Canyon, 14 miles south of La Grande, 4200 feet, 17–23 August 1975 (male), E. J. Davis, WSU, malaise trap baited with CO<sub>2</sub>. Union County, Whiskey Creek, 23 miles southwest of La Grande, 5120 feet, 17–23 August 1975 (male), E. J. Davis, WSU, malaise trap baited with CO<sub>2</sub>. Union County, L. Lick Creek, 26 miles southeast of Union, 4200 feet, 24–31 August 1975 (male), E. J. Davis, WSU, malaise trap baited with CO<sub>2</sub>. WASHINGTON: Chelan County, Skinney Creek, 1 mile north of Leavenworth, 18 July 1972 (male, female), W. J. Turner, WSU. Okanogan County, Salmon Meadows, 9 miles northwest of Conconully, 4500 feet, 23–26 August 1975 (male, 2 females), W. J. Turner, malaise trap with dry ice.

The five specimens from New York and Michigan have light yellow halteres, and flagellomere 1 is yellow basally and brown apically. According to Beyer's description, the halteres of *A. boreotis*, which he described from a single female from Michigan, are yellow, whereas flagellomere 1 is solid black. The holotype and paratype of *A. californica*, both from California, show opposite color characters; in the holotype, the halteres and flagellomere 1 are brown, whereas in the paratype they are yellow. The Oregon and Washington specimens have light brown to yellow halteres, and flagellomere 1 is yellow basally and brown apically.

To test the hypothesis that the Nearctic specimens belong to a single, color variable species, terminalia of specimens from across



Figs. 1–3. *Auxanommatidia boreotis*. 1. Male terminal complex, left lateral view [Camden Valley, Washington County, New York]. 2. Extended ovipositor of dry, pinned female, dorsal view [E. S. George Reserve, Livingston County, Michigan]. 3. Withdrawn ovipositor of macerated female, dorsal view [Salmon Meadows, Okanogan County, Washington].

the continent were dissected and compared. The epandria, hypandria, and other structures of the male terminal complex (Fig. 1) of a specimen from Camden Valley, Washington County, New York (yellow halteres, brown-tipped flagellomere 1) appear to be identical with those of a male from Salmon Meadows, Okanogan County, Washington (light brown halteres, mostly brown flagellomere 1). Likewise, there are no apparent geographic differences in the structure of the ovipositor. In dry, pinned females, the ovipositor is usually withdrawn and appears to be merely a dark brown to black, shining triangle without lateral lobes, as illustrated by Beyer (1963). In the specimen from Livingston County, Michigan (yellow halteres, brown-tipped flagellomere 1), the ovipositor is extended, and lateral lobes are barely evident (Fig. 2). Macerated specimens from Murray Hollow, Washington County, New York (yellow halteres, brown-tipped flagellomere 1), Whiskey Creek, Union County, Oregon (brown halteres, nearly solid brown flagellomere 1), and Salmon Meadows, Okanogan County, Washington (brown halteres, nearly solid brown flagellomere 1) all have identical ovipositors with evident lateral lobes (Fig. 3).

Furthermore, this Nearctic species of *Auxanommatidia* is distinct from the other eight described species. It can be separated from *A. abbreviata* Borgmeier and *A. medleri* Disney by its much larger costal index, which ranges from 0.40 to 0.44 ( $0.43 \pm 0.02$ ,  $n = 16$ ; mean  $\pm$  SD); in the latter two species it ranges from 0.33 to 0.38. [The costal index is the ratio of the length of the costa to the length of the wing, both lengths measured from the basicosta.] It can be separated from *A. hardicki* Borgmeier, *A. intermedia* Borgmeier & Prado, *A. myrmecophila* Borgmeier, and *A. pilifemur* Borgmeier by the large ratio of the length of the first costal segment to the length of the second and third, which ranges from 1.3 to 1.8 ( $1.4 \pm 0.1$ ,  $n = 16$ ); the first segment is the same length as the second and third in the other four species. The Nearctic species lacks the long, recurved mid-metatarsal sensorial bristles found in *A. variegata*, and it is readily distinguished from *A. simplex* Borgmeier by the shape of the ovipositor and its somewhat larger costal index and wing length, which ranges from 1.6 to 2.2 mm ( $1.89 \pm 0.18$ ,  $n = 16$ ).

The Nearctic specimens of *Auxanommatidia* belong to a single species that is distinct from other described *Auxanommatidia*. *A. californica* Borgmeier (December 1963) is a junior synonym of *A. boreotis* Beyer (July 1963) (NEW SYNONYMY).

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